

laboratories has been shown to contain acid-fast bacilli at times. Distilled water should, therefore, not be used in the manipulations, or, if so, it should first be filtered through a fine porcelain filter (sterilized), the first portion of the filtrate being thrown away, and the balance carefully stored away from the dust.

Should it finally be proved that the *myco-*

*bacterium tuberculosis* can exist in an ultra-microscopic form, a vast new field for study will be opened up, notably in regard to our conception of tuberculous infection, the mode of infection, the defensive reaction of the animal organism, the inflammatory reactions, the abacillary stage of tuberculosis, and the sensitization of the organization.

A.G.N.

## STERILIZATION FOR HUMAN BETTERMENT

THEORETICALLY, all will admit that the duty of developing and maintaining the human race at the highest peak of physical mental efficiency is a paramount one. No longer does it seem logical or justifiable to direct our attention to the breeding of cattle, pigs, and horses, to the neglect of our own species. Yet, progress towards this desirable end has been slow. It takes time for the cobwebs of ignorance, prejudice, and ineptitude to be brushed away. Nevertheless, it is becoming evident that thinking people are now being seized of the desire to work for betterment in this particular direction.

Under the law of the "survival of the fittest," Nature's brutal biological necessity, the weakest went to the wall. This was as it used to be. To-day, under the beneficent administrations of preventive medicine and charity, the unfit are preserved, to perpetuate their kind and debase the quality of our race. At one time we bred from the top; now we breed from top and bottom, and, indeed, rather more from the bottom. The tendency to limit their families, so obvious among the more thinking and responsible members of the community, can only mean that the weak, the degenerate, and the generally unfit are steadily becoming more numerous proportionately. Unless something is done about it, one fears for the ultimate fate of the human race. Not only have we to reckon with the disaster of physical and mental degradation, with the sorrow, suffering, and crime that it carries with it, but we have to face the fact that the social and economic burden is growing and must be borne in increasing measure by the fit. How insistent the matter is can be inferred from a few facts. It is stated, on excellent

authority, that there are now three times as many persons afflicted with mental disease in proportion to the total population as there were fifty years ago. If this age of jazz and jollity, with its concomitant mental and physical stress, continues much longer we may expect this proportion to increase. It is estimated conservatively, taking the figures available from the United States, that four per cent of the people in that country will at some time in their lives need institutional care on account of insanity; that five per cent have an intellectuality less than seventy-five per cent of that of the average person. Of the mentally defective the largest and most dangerous class, eugenically considered, are the morons, who present their own numerous and special problems. It is difficult, perhaps impossible, to estimate in what degree they lessen the effectiveness of a nation.

There can be no doubt that heredity plays a part in the perpetuation of inferior, as of superior, stocks. The extent of its influence is more open to debate. There is enough evidence, however, to prove the truth of the general contention. We shall not develop the point, but may, perhaps, refer to the history of some noted families. In the case of the Kallikak family, the founder had an illegitimate son by a feeble-minded woman. From this son there sprang, in five generations, 480 descendants, of whom only 46 were known to be normal. The same founder subsequently married a normal woman, and from this pair, in six generations, 496 children were descended, only one of whom was known to be abnormal. The famous Jukes family produced 1,200 defectives in six generations; the Nam family was 96 per cent feeble-minded.

The extent of the economic loss from feeble-mindedness may be to some extent appreciated when it is stated that each of these families cost its respective state from one to three millions of dollars. Some years ago, the State of Ohio recorded that it was then expending five millions of dollars annually for the care of mental defectives in its public institutions, and estimated that the whole civilized world was paying out about five thousand millions annually for the same privilege.

Facts such as these constitute a grievous indictment of our commonsense. What can be done about it? One answer is "Segregation," another is "Sterilization." The first alternative is expensive and relatively ineffective. The second, while to some it appears morally unjustifiable, is certainly effective. If practiced generally in suitable cases, of course with proper checks, it would go far to solve the problem of the survival of the mentally unfit. That the idea is gaining ground is evidenced by the fact that at nearly every conference on mental hygiene and in societies dealing with abnormal psychology the subject of sterilization of the unfit crops up, whether it is formally on the program or not. Like Banquo's ghost it will not be downed. And, no doubt, as fuller knowledge becomes available, much of the prejudice and doubt that envelopes the subject will disappear.

While some few countries have enacted sterilization laws these laws are often poorly conceived or inadequately put into operation. Consequently, it has been difficult to get sufficient facts on which to base any conclusions. There is one notable exception, however. For twenty years the State of California has put into operation an effective sterilization law. Those who are interested will be glad to learn that the experience of these twenty years has been made available in book form, under the auspices of the Human Betterment Foundation.\* Some of the chief findings we shall now refer to.

Up to January 1st, 1929, sterilization has been carried out in 6,255 cases. The operation consists, in the male, of removing sections from the vasa deferentia, and tying

the cut ends; in the female, of carrying out an identical procedure on the Fallopian tubes, by abdominal section. There were very few failures, only three in males and four in females out of the whole number. The mortality from the operation itself seems to be nil.

The results of the California experiment are interesting. The authors of the book referred to above conclude that "So far as can be judged the operation has no effect—except to prevent parenthood." In regard to sexual activity and desire, as a rule there is little change one way or the other. "An actual improvement in the sexual life is reported by one man in seven, one woman in three."

As pointed out in the report, sterilization may be accomplished for personal, social, or eugenic reasons. The personal reasons are for the protection of physical health or, occasionally, for the prevention of mental strain. The first of these probably applies to women only, and has its justification in the presence of disease of the heart, lungs, or kidneys, when the strain induced by pregnancy would probably be injurious.

The operation for social reasons has a wide application. In California it has been used largely in the treatment of sex offenders, though its employment is never emphasized as a form of punishment. It is also valuable in the handling of a certain number of mental defectives, but not as the only measure to be employed. "Sterilization offers itself not as a substitute for segregation or parole, but as an adjunct to parole which makes it possible to extend the parole system safely."

The principal field for sterilization remains, namely, the eugenic. Persons should be sterilized if it is to the interest of the race that they produce no children or no more children, and if it appears that sterilization is the most effective and satisfactory means of preventing reproduction. Here, the interruption of a bad inheritance comes into thought. Amaurotic family idiocy, hæmophilia, Huntingdon's chorea, certain forms of blindness, and deaf-mutism, dementia præcox, and manic depressive insanity could properly be limited by the procedure.

Finally, the authors feel that the experi-

\* Sterilization for Human Betterment, E. S. Gosney, B.S., LL.B., and Paul Popenoe, D.Sc., New York. The Macmillan Company, 1929.

ment has been a distinct success. The operation of sterilization "certainly tends to prevent the birth of many inferior children, thereby allowing the proportion of superior children born in the population to increase. It also reduces definitely the burden of

caring for defectives and dependents." They add, however, that with the negative measure of sterilization there should go hand in hand the positive measure of the encouraging of good breeding.

A.G.N.

## Editorial Comments

### THE INTERNATIONAL HEALTH YEAR-BOOK OF THE LEAGUE OF NATIONS, 1928

The Health Organization of the League of Nations has just published its International Health Year-Book for 1928. This is the fourth volume of this publication, and it contains information concerning twenty-nine countries. Australia, Austria, Belgium, Canada, Czechoslovakia, Denmark, Dominican Republic, Egypt, Estonia, Finland, France, Germany, Hungary, Irish Free State, Italy, Japan, Latvia, the Netherlands, Norway, New Zealand, Panama, Poland, Roumania, Spain, Spanish possessions in the Gulf of Guinea, Sweden, Turkey, Union of Soviet Republics, United Kingdom (England, Wales, Scotland, Northern Ireland), Kenya, British Somaliland, and Tanganyika.

The object of the Year-Book is to give a survey of the progress made by the various countries in the domain of public health. It indicates new developments in the workings of the various health services, gives the most recent data as regards vital and health statistics, and reviews the work of the principal international organizations dealing with public health, such as the League of Red Cross Societies, the Rockefeller Foundation, and the League Health Organization. The information contained in the Year-Book is furnished by the heads of national health services or persons deputed by them for this purpose.

The statistics and data concerning each of the countries are arranged on the uniform lines adopted by the League Health Organization, and include twenty-eight standard tables (excepting in the case of Australia, Czechoslovakia, Estonia, Germany, Japan, Norway, Spain, who preferred to present their statistics in tables specially prepared by their health services).

These tables are designed to present the minimum of vital statistics necessary to allow the reader to "interpret correctly the information relating to health conditions in the country under consideration, and to compare the health conditions of the various countries." They fall into the seven following groups: (1) General Demography; (2) Birth Rates; (3) General

Death Rate; (4) Causes of Death; (5) Infant Mortality; (6) Public Health Statistics; (7) Curative Medicine.

The Year-Book also contains a survey of industrial hygiene in Great Britain, Belgium, and Germany.

It is hardly possible to exaggerate the importance of the activities of the League of Nations in the public health field. From its Year-Book, which is unique of its kind, it is possible to obtain, and there only, accurate information as to the distribution of diseases throughout the various countries of the world, their extent, and their paths of extension. Through knowledge of this kind, which, of course, is available first to officials of the League, practical results have already accrued, for information as to the prevalence of dangerous infectious disease is given by wireless to masters of ships and port authorities, thus enabling them to take timely precautions. The social bearing of disease is clearly brought out, and statisticians, epidemiologists, and social workers will find in the Year-Book much that will interest them, and much that will form a basis for further advances in the welfare of the world.

A.G.N.

### SMOKE ABATEMENT IN NEW YORK CITY

The following is evidence of the efforts being made by the New York Health Department to control the smoke menace within the city limits.

"New York has done away with 70 per cent of the smoke nuisance on Manhattan and 50 per cent on the rivers. Two years ago nearly sixty tugs were seen puffing smoke, but recently the health department could pick out only fourteen tugs in a day violating the smoke regulations. These were speedily controlled through the co-operation of local organizations and scientists. Harvey N. Davis, President of the Stevens Institute of Technology, has organized a New Jersey committee to co-operate with the New York committee. Prof. Williams J. Moore, of the Polytechnic Institute, Brooklyn, is studying the smoke problem; Prof. H. H. Sheldon, of New York University, is making a three years' study of the problem, with regard to ultraviolet radiation and the dust count. Edward R. Weidlein, of the Mellon Institute, Pittsburgh, is assisting the New York Health Department, and Dr. Davis is studying smoke prevention and the most workable ordinances in effect throughout the country. The National Conference